

REMARKS

This is a response to the office action mailed on 4/23/03. Claims 1, 3, and 4 have been amended. Applicants believe that the amended claim 1 is supported by original claims 1 and 3 and the description, “[t]he weight average of the water soluble polymer is preferably from 1,000 to 200,000,” on page 24, lines 17 and 18 of the specification as filed.

Claims 1-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Scaringe et al. (USPN 6,132,501). Claims 1-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Bishop et al. (EP 0776952). However, neither Scaringe et al. nor Bishop et al. disclose a pigment dispersion liquid containing a water soluble polymer, much less a water soluble polymer with a weight average molecular weight of 1000 to 200,000, as recited in instant claim. Therefore, instant claims are not anticipated by, nor obvious, over the cited references.

In spite of the above, in order to show unexpected results of the invention, additional comparative tests were carried out. The results are shown in the declaration attached hereto. As is apparent from Tables 101 and 102 of the declaration, inventive pigment dispersion liquids comprise pigment particles falling within the claimed scope of ($D_{90} - D_{10}$). Further, inventive pigment inks comprising the inventive pigment dispersion liquids provide good dispersion stability, good resistance to nozzle clogging during ink jetting, and images with minimized bronzing and good glossiness, as compared with comparative pigment inks comprising comparative pigment dispersion liquids. These results are unexpected to one of ordinary skill in the art. In view of the above, it would not have been obvious to one of ordinary skill in the art to attain the invention over Scaringe et al., Bishop et al., or a combination thereof. Accordingly, Applicants believe that instant claim 1, and all the claims which depend therefrom, are in condition for allowance. Withdrawal of the rejections is respectfully requested.

CONCLUSION

Applicants respectfully request prompt examination and allowance of the claims. If the Examiner has any questions or concerns, the Examiner is invited to telephone the undersigned attorney at (415) 954-0323.

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Respectfully submitted,


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Version with Markings to Show Changes Made

Please amend Claims 1, 3, and 4 as indicated below. Claims 2, 5, 6, 7, and 8 have not been amended and are provided in italics. Claims 9-33 have been withdrawn from consideration in paper number 7.

1. (amended) A pigment dispersion liquid comprising a water soluble polymer with a weight average molecular weight of 1,000 to 200,000 and pigment particles dispersed in a dispersion medium, the difference ($D_{90} - D_{10}$) between D_{90} and D_{10} being not more than 25 nm, wherein D_{90} and D_{10} represent the primary particle size that the pigment particles having a primary particle size up to and including D_{90} account for 90% by number of the total pigment particles, and the particle size that the pigment particles having a primary particle size up to and including D_{10} account for 10% by number of the total pigment particles, respectively, in the integral of the primary particle size distribution function $dG = f(D) \times dD$ of the pigment particles in which G is a particle number (%) and D is a primary particle size (nm).
2. (pending) *The pigment dispersion liquid of claim 1, wherein the average primary particle size of the pigment particles is not more than 30 nm.*
3. (amended) The pigment dispersion liquid of claim 1, further comprising [a water soluble polymer or] a surfactant.
4. (amended) The pigment dispersion liquid of claim 1, wherein [a] the water soluble polymer is adsorbed on the surface of the pigment particles.
5. (pending) *The pigment dispersion liquid of claim 4, wherein the water soluble polymer has an anionic polar group.*

6. (pending) *The pigment dispersion liquid of claim 1, wherein a surfactant is adsorbed on the surface of the pigment particles.*

7. (pending) *The pigment dispersion liquid of claim 1, wherein the pigment dispersion liquid comprises a pigment derivative having a polar group.*

8. (pending) *The pigment dispersion liquid of claim 1, wherein the dispersion medium is an aqueous medium containing water in an amount of at least 50% by weight.*